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PHILOSOPHICAL TRANSACTIONS.

XI. *Of the Influence of Cold upon the Health of the Inhabitants of London.* By William Heberden Jun. M. D. F. R. S.

Read March 10, 1796.

THE extraordinary mildness of last January, compared with the unusual severity of the January preceding, affords a peculiarly favourable opportunity of observing the effect of each of these seasons contrasted with each other. For of these two successive winters, one has been the coldest, and the other the warmest, of which any regular account has ever been kept in this country. Nor is this by any means an idle speculation, or matter of mere curiosity; for one of the first steps towards preserving the health of our fellow-creatures, is to point out the sources from which diseases are to be apprehended. And what may make the present inquiry more particularly useful, is that the result, as I hope clearly to make appear by the following statements, is entirely contrary to the prejudices usually entertained upon this subject.

During last January, nothing was more common than to hear expressions of the unseasonableness of the weather; and fears lest the want of the usual degree of cold, should be productive of putrid diseases, and I know not what other causes of mortality. On the other hand, “a bracing cold,” and “a clear frost,” are familiar in the mouth of every Englishman; and what he is taught to wish for, as among the greatest promoters of health and vigour.

Whatever deference be due to received opinions, it appears to me however from the strongest evidence, that the prejudices of the world are upon this point at least unfounded. The average degrees of heat upon FAHRENHEIT’S thermometer kept in London during the month of January 1795, was 23° in the morning, and $29^{\circ}.4$ in the afternoon. The average in January 1796, was $43^{\circ}.5$ in the morning, and $50^{\circ}.1$ in the afternoon. A difference of above twenty degrees! And if we turn our attention from the comparative coldness of these months, to the corresponding healthiness of each, collected from the weekly bills of mortality, we shall find the result no less remarkable. For in five weeks between the 31st of December 1794 and the 3d of February 1795, the whole number of burials amounted to 2823; and in an equal period of five weeks between the 30th of December 1795 and the 2d of February 1796, to 1471. So that the excess of the mortality in January 1795 above that of January 1796, was not less than of 1352 persons. A number sufficient surely to awaken the attention of the most prejudiced admirers of a frosty winter. And though I have only stated the evidence of two years, the same conclusion may universally be drawn; as I have learned from a careful examination of the weekly bills of mortality for

many years. These two seasons were chosen as being each of them very remarkable, and in immediate succession one to the other, and in every body's recollection.

It may not be impertinent to the objects of this Society, without entering too much into the province of medicine, to consider a little more particularly the several ways in which this effect may be supposed to be produced; and to point out some of the principal injuries which people are liable to sustain in their health from a severe frost. And one of the first things that must strike every mind engaged in this investigation, is its effect on old people. It is curious to observe among those who are said in the bills to die above 60 years of age, how regularly the tide of mortality follows the influence of this prevailing cause: so that a person used to such inquiries, may form no contemptible judgment of the severity of any of our winter months, merely by attending to this circumstance. Thus their number last January was not much above $\frac{1}{5}$ th of what it had been in the same month the year before. The article of asthma, as might be expected, is prodigiously increased, and perhaps includes no inconsiderable part of the mortality of the aged. After these come apoplexies and palsies, fevers, consumptions, and dropsies. Under the two last of which are contained a large proportion of the chronical diseases of this country; all which seem to be hurried on to a premature termination. The whole will most readily be seen at one view in the following table.

1795.

Week ending	Mean heat.		Whole No. of deaths.	Aged above 60.	Asthma.	Apoplexy and palsy.	Fever.	Consumption.	Dropsy.
	Morn.	Noon.							
6 Jan.	25°	29°	244	51	13	4	20	73	7
13 Jan.	26°	32°	532	139	26	13	49	158	20
20 Jan.	24°	30°	637	145	51	11	81	164	37
27 Jan.	19°	27°	543	143	64	11	42	157	17
3 Feb.	25°	37°	867	239	95	13	66	273	45
Result	23°	29°.4	2823	717	249	52	258	825	126

1796.

Week ending	Mean heat.		Whole No. of deaths.	Aged above 60.	Asthma.	Apoplexy and palsy.	Fever.	Consumption.	Dropsy.
	Morn.	Noon.							
5 Jan.	40°	46°	300	35	5	7	34	79	13
12 Jan.	41°	49°	273	37	9	5	25	53	19
19 Jan.	48°	53°	313	29	2	4	29	77	11
26 Jan.	47°	52°	257	20	7	9	23	47	11
2 Feb.	41°	49°	328	32	6	6	23	86	16
Result	43°.5	50°.1	1471	153	29	31	134	342	70

Notwithstanding the plague, the remittent fever, the dysentery, and the scurvy, have so decreased, that their very name is almost unknown in London; yet there has, I know not how, arisen a prejudice concerning putrid diseases, which seems to have made people more and more apprehensive of them, as the danger has been growing less. It must in great measure be attributed to this, that the consumption of Peruvian bark

in this country has, within the last fifty years, increased from 14,000 to above 100,000 pounds annually. And the same cause has probably contributed, from a mistaken mode of reasoning, to prepossess people with the idea of the wholesomeness of a hard frost. But it has in another place* been very ably demonstrated that a long frost is eventually productive of the worst putrid fevers that are at this time known in London; and that heat does in fact prove a real preventive against that disease. And although this may be said to be a very remote effect of the cold, it is not therefore the less real in its influence upon the mortality of London. Accordingly a comparison of the numbers in the foregoing table will shew that very nearly twice as many persons died of fevers in January 1795, as did in the corresponding month of this year. I might go on to observe that the true scurvy was last year generated in the metropolis from the same causes extended to an unusual length. But these are by no means the only ways, nor indeed do they seem to be the principal ways, in which a frost operates to the destruction of great numbers of people. The poor, as they are worse protected from the weather, so are they of course the greatest sufferers by its inclemency. But every physician in London, and every apothecary, can add his testimony, that their business among all ranks of people never fails to increase, and to decrease, with the frost. For if there be any whose lungs are tender, any whose constitution has been impaired either by age, or by intemperance, or by disease; he will be very liable to have all his complaints increased, and all his infirmities aggravated by such a season. Nor must the young and active think themselves quite secure,

* Observations on the Jail Fever, by Dr. HUNTER, Med. Trans. Vol. III.

or fancy their health will be confirmed by imprudently exposing themselves. The stoutest man may meet with impediments to his recovery from accidents otherwise inconsiderable; or may contract inflammations, or coughs, and lay the foundation of the severest ills. In a country where the prevailing complaints among all orders of people are colds, coughs, consumptions, and rheumatisms, no prudent man can surely suppose that unnecessary exposure to an inclement sky; that priding oneself upon going without any additional clothing in the severest winter; that inuring oneself to be hardy, at a time that demands our cherishing the firmest constitution lest it suffer; that braving the winds, and challenging the rudest efforts of the season, can ever be generally useful to Englishmen. But if generally, and upon the whole, it be inexpedient, then ought every one for himself to take care that he be not the sufferer. For many doctrines very importantly erroneous; many remedies either vain, or even noxious, are daily imposed upon the world for want of attention to this great truth; that it is from general effects only, and those founded upon extensive experience, that any maxim to which each individual may with confidence defer, can possibly be established.